wet prairies, cypress swamps, mangrove swamps, and coastal lagoons and bays. This mosaic of habitat, in its vast area and with its unique water patterns, supported the continuing survival of animals under a wide range of seasonal and annual conditions.

Water is the key to restoration today. The current Everglades are only about half the size they were 100 years ago. While we cannot restore their historic size, we can restore many of the ways in which water was stored and flowed in the remaining area. Water — in the right place, at the right time, in the right quantity and quality — is a major necessary ingredient in the ecology that supports life in the Everglades.

Ecosystem Problems Center on Water

Some 50 years ago, when the people who lived in south Florida suffered through hurricanes and floods, droughts and fires, and when the region was expanding and growing, Congress authorized the Central and Southern Florida Project. This massive water management project was built to address flood protection and provide water to the people and agricultural lands. When the project was designed in the 1950s only about 500,000 people lived in the region, and it was estimated there might be two million by the year 2000. Today's population of about six million people is three times more than the project was designed to serve. This strains the ability of the built system to perform its intended functions. Also, until fairly recent times, we did not understand or appreciate as much about the natural environment as we do today, and the project has had unforeseen detrimental environmental effects.

Changes in water have caused many harmful changes in the natural environment. Over the past 100 years, excessive drainage of wetlands and changes in the natural variability of water flows have altered the Everglades wetland ecosystem on a regional scale.

Indicators of Ecosystem Problems

- 90-95% reduction in wading bird populations
- 68 plant and animal species are threatened or endangered
- 1.7 billion gallons of water per day on average lost through discharge to the ocean
- 1 million acres of the ecosystem under health advisories for mercury contamination
- Over 1.5 million acres infested with invasive, exotic plants
- Declining population levels of commercially and recreationally important fish species in the St. Lucie and Caloosahatchee estuaries and Biscayne and Florida bays
- Defoliation of seagrasses, fish kills and deformed fish within the St. Lucie estuary
- Continued reduction in number of birds initiating breeding in south Florida
- Repetitive water shortages and salt water intrusion

The remaining Everglades, and indeed the entire south Florida ecosystem, no longer exhibit the functions, richness, and area that historically defined the pre-drainage system. There have been substantial and irreversible reductions in the size of the ecosystem. Most of the negative changes in the ecosystem are a direct result of water management activities to control floods and provide for water supply. Today, discharges to the Everglades are often too much, or too little, and frequently at the wrong times of the year. An over abundance or scarcity of water affects plants and wildlife accustomed to the Everglades' historic range of water flows and levels. In addition, canals and highways that criss-cross the Everglades have interrupted its historic overland sheet flow.

Historically, most rainwater soaked into the ground in the region's vast wetlands. As south Florida developed, the canal system built over the past 100 years worked very effectively and drained water off the land too quickly. As a result, approximately **1.7 billion gallons of water per day** on average are discharged to the ocean and gulf. One conse-

quence is that not enough water is available for the environment.

Water quality throughout south Florida has deteriorated over the past 50 years. More than one-half of the wetlands that act as natural filters and retention areas are gone. Some untreated urban and agricultural storm water is sent directly to natural areas and estuaries. Too much, or too little, water is often sent to estuaries. Too many nutrients are entering the Everglades, with an over abundance of cattails a visible sign of the results.

These natural systems will not recover their defining characteristics under current conditions and cannot be sustained in the future. The health of the ecosystem will continue to decline unless we act.

Urban and agricultural water shortages are expected if the Plan is not implemented. Drainage, water supply and flood protection provided by the Central and Southern Florida Project have allowed the growth of south Florida's population. Local governments in south Florida are predicting that the population will reach 8 million by 2010 and will range from 12-15 million people by 2050, more than twice the current population. Approximately 64 percent of the region's current population is concentrated in the three lower east coast counties of Miami-Dade, Broward, and Palm Beach. This distribution pattern is expected to remain the same in the future. Urban water supply demands could increase from approximately one billion gallons of water per day today to two billion gallons of water per day by 2050.

Future water demands will cause conflict. The growing demand for a reliable and inexpensive supply of water for agriculture, industry, and a burgeoning population will likely exceed the limits of readily accessible sources. As the needs of the region's natural systems are factored in, as they must be, conflicts for water among users will become even more severe. Water shortages will become more frequent and more severe unless changes to the water management system are made.

Scientists, engineers and other specialists working on the Restudy determined that the problems in the Everglades and the entire south Florida ecosystem were primarily the result of water management and related activities.

(For more information, please refer to Section 5, Problems and Opportunities*, in the final report.)*